# The Challenges of Aquaculture Management

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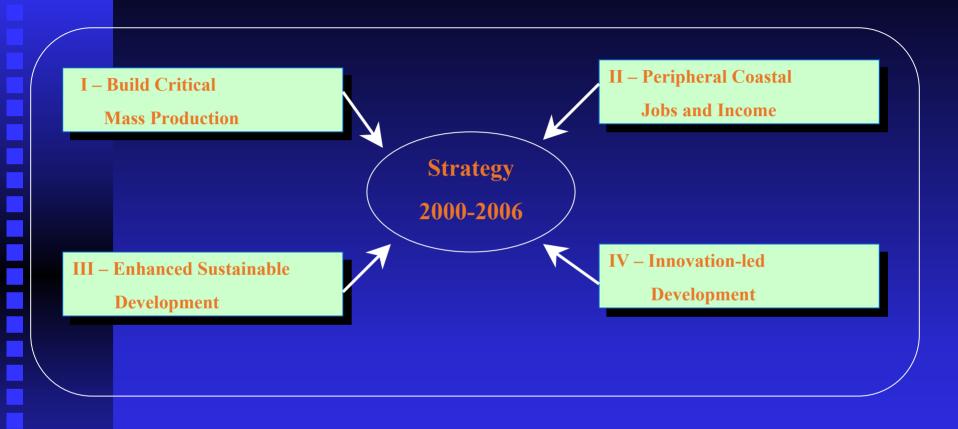
## Irish Aquaculture Industry

- Is a growing industry in terms of value and production.
- It is a strategically important industry to coastal communities.
- It relies on the primary national natural resource of our bays and inshore waters.
- It requires appropriate management to ensure its sustainability & development.
- A combination of national and locally based integrated management is essential.

## The Circa Group Report

for Dept. of Marine & Natural Resources

- Irish aquaculture output can sustainably expand to 160,000 tonnes per annum by 2015.
- Increase in value from €76 million to €600 million per annum.
- Producing at least 150,000 tonnes of output & supporting 6000 jobs.



**Source**: DoMNR, (2000). Irish Aquaculture, The Future – Strategies for meeting the Global Seafood Challenge.

## Socio-Economic Impact of Aquaculture Conclusions:

- Clear dependence on Aquaculture in remote coastal communities.
- Ancillary dependence significant & extends outside marine sector
- High level of support for the industry & jobs created in local communities.
- Relationship between local community & industry more transparent now.

**Source:** White, F. & J. Costelloe, (1999). Socio-economic evaluation of the impact of the aquaculture industry in Counties Donegal, Galway, Kerry and Cork. *Marine Resource Series*, *No. 7*.

#### Socio-Economic Impact of Aquaculture

- 32% no major changes
- 54% more jobs, more money, less emigration
- 5% negative effects, pollution
- Donegal "important role as extension of fishing & processing industry"
- Galway "stability of whole community reliant on aquaculture"
- Cork/Kerry "aquaculture & stock enhancement beneficial form of diversification"

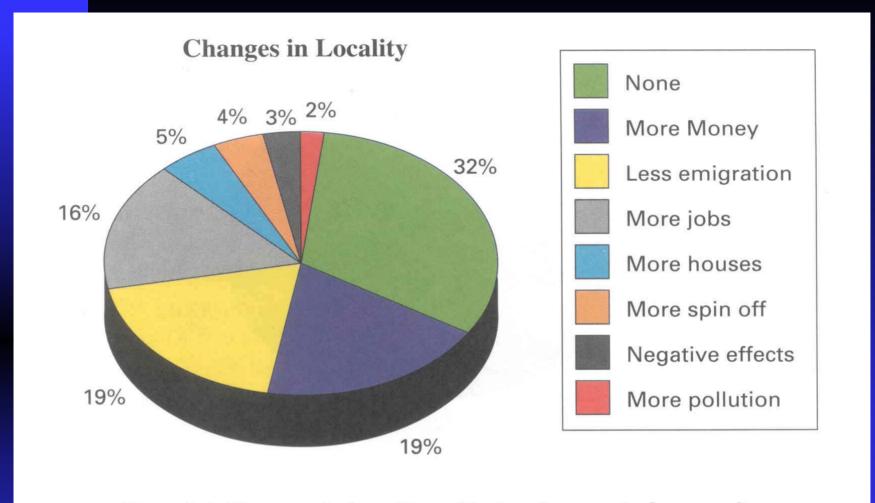


Chart 4.4. Changes in Locality with development of aquaculture.

**Source:** White, F. & J. Costelloe, (1999). Socio-economic evaluation of the impact of the aquaculture industry in Counties Donegal, Galway, Kerry and Cork. *Marine Resource Series*, *No.* 7.

#### Strands of Aquaculture Management

- Licensing
- Protocols and guidelines
- Single Bay Management plans
- CLAMS
- Quality schemes
- On farm management plans

## Licensing & Management

#### Licensing

- Contract with State
- Establishes rights
- Sets limits & obligations
- Fixed conditions
- Medium term security

#### Management

- Medium term planning
- Day to day implementation
- React to changed conditions
- Regular up-dates on husbandry practices

#### Management components

#### **National**

- Aquaculture license
- Foreshore license
- Protocols
- Policy Guidelines

#### Local

- On-farm management plans
- Single Bay Management plan
- CLAMS

## A Tale of two Bays

#### ■ Kilkieran Bay

- Complex embayment
- Well developed managed fishery for scallops and oysters
- Six companies, twenty sites farming salmon
- Wild sports fisheries opening into bay
- SBM in place since 1994

#### Clew Bay

- Large and complex embayment
- Well developed managed fishery for Flat oysters
- Strong local management through Co-Op
- Rope mussel culture & Gigas culture
- Salmon & Rainbow trout farming
- Wild sports fisheries opening into bay
- SBM in place

#### What is Single Bay Management?

Integrated management rather than treatment to control disease and parasites.

Introduced to control sea lice infestations in Irish farmed salmon.

■ S.B.M. techniques were progressively introduced from 1992 to 1994.

#### What does it do?

- Information exchange
- Agreed code of practice
- Single generation sites
- Early harvest of two sea winter fish
- Annual fallowing of production sites

#### Does it work?

- Reduced sea lice levels
- Pancreas Disease eliminated by fallowing
- Furunculosis virtually eliminated by
  - → Fallowing
  - → Vaccination
  - Single generation sites
- SBM a key in settlement of litigation

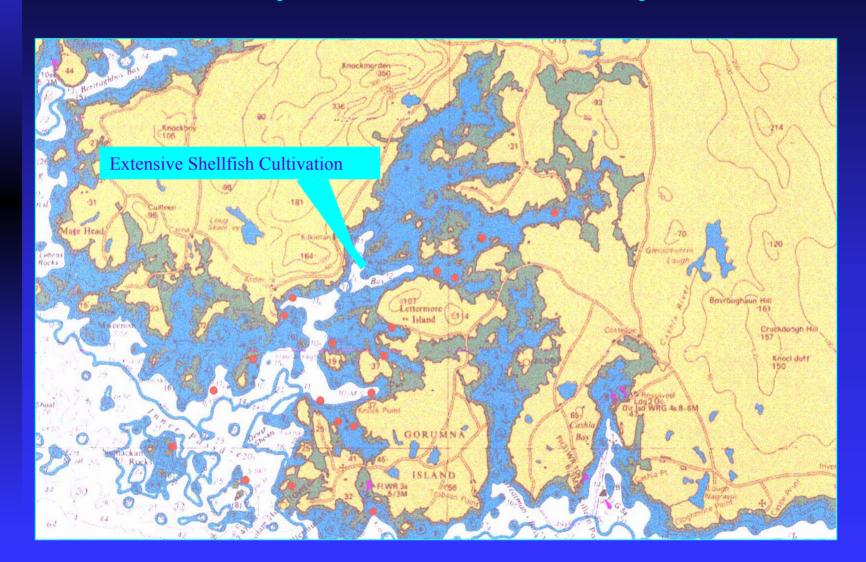
#### C.L.A.M.S.

- Co-ordinated Local Aquaculture Management
- A Development of Single Bay Management.
- Extend SBM to shellfish sector
- Integrate management practices of various species sectors.
- Incorporate management and development plans in one document.

#### What does it do?

- Information exchange
- Agreed codes of practice
- Single Bay Management Plan
- Standing Committee (CLAMS C'ttee)
- Work Programmes
- Agreed, published Document
- Contact Point for Aquaculture

## Case Study: Kilkiaran Bay



## CLAMS in Kilkiaran Bay

- A Local C.L.A.M.S. committee was set up in 1999.
- Fin-fish and Shellfish producers.
- Wide consultation.
- Draft of C.L.A.M.S. Plan for Kilkiaran Produced.
- Comprehensive Management & Development Plan in place.
- CLAMS document Launched by Minister in November 2000.
- Strong co-operative links between all producers.

## Issues requiring co-operation

- Fallowing/separation of generations
- Harvesting practices
- Uniform smolt vaccination protocol
- Plankton monitoring
- Summer Water Quality Monitoring
- Agreement with fishery owners on lice control levels

## Obstacles and steps taken

- Lack of fallowing sites
- Resources to carry out sampling
- Co-ordination of treatments

- Joint venture company to manage smolt inputs
- Jointly managed smolt site
- Summer syndrome project
- Advisory service (Marine Institute)

## CLAMS in Clew Bay

- Existing management in the Bay sought to develop closer co-ordination.
- Co-Op/ Marine Forum Ltd.& SBM Group
- Initial meetings in May 1998
- CLAMS Group formed in early 2000
- CLAMS Document launched in December 2001

## Key Areas Addressed

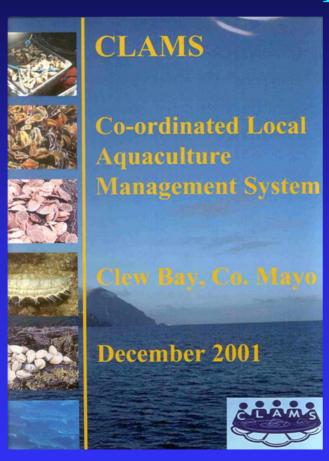
- Provide a common focus for diverse aquaculture activities
- Open Transparent information exchange
- Address concerns/Avoid conflicts
- Develop a common vision for Aquaculture in the Bay
- Draw up a work-plan

## Some Management Issues Addressed

- Attainment of BestPractice by all sectors
- Pollution
- Navigation Hazards
- Pier Issues
- Biotoxin Monitoring
- SAC Designation
- Resource management

- Sub c'ttee to draw up additional codes of practice
- Separate studies on Navigation & Piers funded for presentation to agencies/Local govt.
- New initiative on monitoring sought
- Ongoing consultation

# Elements of Clew Bay CLAMS Workplan 2002



- Sub-group to develop codes of practice.
- Commissioning of Hydrographic Model for Bay. (funding from M.I.)
- Ongoing consultation process on developments in the Bay. (e.g. Westport Marina)

## Lessons Learned? Key to Success

- Locally based integrated management essential.
- Crucial elements are appropriate husbandry practices and close co-operation.
- A fundamental characteristic: High level of local participation and associated sense of ownership.

#### Key Attributes of Local management:

- Locally based
- Integrated approach
- Informed by National policies & guidelines
- Optimisation of conditions in the bay
- control of disease and parasites
- more efficient production
- co-operative ventures
- Conflict Avoidance/resolution

#### Fruits of success

- Coordinated Local Aquaculture Management is now Government policy.
- C.L.A.M.S. is being extended to cover all shellfish and finfish aquaculture.
- C.L.A.M.S. to be used as a primary input to broader Coastal Zone Management (*Circa Report, 2000*).
- Aquaculture countries on both sides of the Atlantic are adopting many of our ideas for their own industries.
- Area Management Agreements (Scotland)
- Bay Management Agreements (New Brunswick & Maine)

